

S/N 09/945,535



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kie Y. Ahn et al.

Examiner: Colleen Rodgers

Serial No.: 09/945,535

Group Art Unit: 2813

Filed: August 30, 2001

Docket: 1303.026US1

Customer No.: 73115

Confirmation No.: 2681

Title: HIGHLY RELIABLE AMORPHOUS HIGH-K GATE OXIDE ZrO₂

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

MS Amendment

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(c)(2), Applicants hereby authorize the Commissoner to charge the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p), to Deposit Account No. 19-0743. Please charge any additional fees or credit any overpayment to Deposit Account No. 19-0743.

Applicant brings to the attention of the Examiner the following Office Actions and responses associated with one or both of the inventors of the instant application and/or the assignee of the instant application. This material is available and accessible at the United States Patent and Trademark Office.

GATE OXIDES AND METHODS OF FORMING

02/08/2008 ATRINH 00000071 198743 09945535

Application Serial No. 09/944,981 (Atty Ref 1303.021US1), Notice of Allowance mailed 06-21-04, 5 pgs

Application Serial No. 09/944,981 (Atty Ref 1303.021US1), Restriction Requirement mailed 06-06-02, 5 pgs

Application Serial No. 09/944,981 (Atty Ref 1303.021US1), Response filed 07-02-02 to Restriction Requirement mailed 06-06-02, 2 pgs

LOW-TEMPERATURE GROWN HIGH-QUALITY ULTRA-THIN PRASEODYMIUM GATE DIELECTRICS

Application Serial No. 10/027,315 (Atty Ref 1303.033US1), Restriction Requirement mailed 03-26-03, 7 pgs

Application Serial No. 10/027,315 (Atty Ref 1303.033US1), Response filed 04-25-03 to Restriction Requirement mailed 03-26-03, 2 pgs

HIGHLY RELIABLE AMORPHOUS HIGH-k GATE DIELECTRIC ZrO_xNy

Application Serial No. 10/052,983 (Atty Ref 1303.031US1), Restriction Requirement mailed 07-25-02, 5 pgs

Application Serial No. 10/052,983 (Atty Ref 1303.031US1), Response filed 08-26-02 to Restriction Requirement mailed 07-25-02, 2 pgs

EVAPORATED LaAlO₃ FILMS FOR GATE DIELECTRICS

Application Serial No. 10/081,439 (Atty. Ref. 1303.046US1) Notice of Allowance mailed 4-8-05, 5 pgs

ATOMIC LAYER-DEPOSITED LaAlO₃ FILMS FOR GATE DIELECTRICS

Application Serial No. 10/137,499 (Atty Ref 1303.050US1), Comments on Reasons for Notice of Allowance filed 04-06-06, 1 pg

Application Serial No. 10/137,499 (Atty Ref 1303.050US1), Restriction Requirement mailed 09-20-02, 6 pgs

Application Serial No. 10/137,499 (Atty Ref 1303.050US1), Response filed 10-21-02 to Restriction Requirement mailed 09-20-02, 2 pgs

ATOMIC LAYER-DEPOSITED HAFNIUM ALUMINUM OXIDE FILMS

Application Serial No. 10/163,481 (Atty Ref 1303.056US1), Restriction Requirement filed 6-16-2004, 4 pgs

Application Serial No. 10/163,481 (Atty Ref 1303.056US1), Advisory Action mailed 10-13-05, 3 pgs

Application Serial No. 10/163,481 (Atty Ref 1303.056US1), Response filed 10-21-05 to Advisory Action mailed 10-13-05, 23 pgs

Application Serial No. 10/163,481 (Atty Ref 1303.056US1), Comments filed 09-15-06 to Notice of Allowance mailed 06-27-06, 1 pg

Application Serial No. 10/163,481 (Atty Ref 1303.056US1), Response filed 09-15-06 to Notice of Allowance mailed 06-27-06, 3 pgs

Application Serial No. 10/163,481 (Atty Ref 1303.056US1), Notice of Allowance filed 6-27-2006, 4 pgs

Application Serial No. 10/163,481 (Atty Ref 1303.056US1), Response filed 4-5-2006 to Non-Final Office Action mailed 1-5-2006, 23 pgs

Application Serial No. 10/163,481 (Atty Ref 1303.056US1), Response filed 7-7-2004 to Restriction Requirement mailed 6-16-2004, 1 pg.

Application Serial No. 10/163,481 (Atty Ref 1303.056US1), Response filed 10-11-06 to Rule 312 Communication Received, 3 pgs

A METHOD INCLUDING FORMING GATE DIELECTRICS HAVING MULTIPLE LANTHANIDE OXIDE LAYERS

Application Serial No. 10/163,686, (Atty Ref 1303.059US1) Advisory Action mailed 3-18-2005, 2 pgs

Application Serial No. 10/163,686, (Atty Ref 1303.059US1) Advisory Action mailed 2-21-2006, 2 pgs

Application Serial No. 10/163,686, (Atty Ref 1303.059US1) Response filed 3-23-2006 to Advisory Action mailed 2-21-2006, 16 pgs

Application Serial No. 10/163,686, (Atty Ref 1303.059US1) Response filed 5-5-2004 to Restriction Requirement mailed 4-5-2004, 1 pgs

Application Serial No. 10/163,686, (Atty Ref 1303.059US1) Restriction Requirement mailed 4-5-2004, 5 pgs

ATOMIC LAYER DEPOSITED NANOLAMINATES OF HfO₂/ZrO₂ FILMS AS GATE DIELECTRICS

Application Serial No. 10/209,581 (Atty Ref 1303.061US1), Non Final Office Action mailed 7-11-03, 6 pgs

Application Serial No. 10/209,581 (Atty Ref 1303.061US1), Response filed 10-14-03 to Non Final Office Action mailed 7-11-03, 19 pgs

Application Serial No. 10/209,581 (Atty Ref 1303.061US1), Non Final Office Action mailed 1-29-04, 4 pgs

Application Serial No. 10/209,581 (Atty Ref 1303.061US1), Response filed 4-27-04 to Non Final Office Action mailed 1-29-04, 18 pgs

Application Serial No. 10/209,581 (Atty Ref 1303.061US1), Notice of Allowance mailed 10-6-04, 7 pgs

Application Serial No. 10/209,581 (Atty Ref 1303.061US1), Notice of Allowance mailed 2-24-05, 6 pgs

LANTHANIDE DOPED TiO_x DIELECTRIC FILMS BY PLASMA OXIDATION

Application Serial No. 10/219,870 (Atty Ref 1303.069US1), Restriction Requirement mailed 6-6-03, 5 pgs

Application Serial No. 10/219,870 (Atty Ref 1303.069US1), Response filed 7-7-03 to Restriction Requirement mailed 6-6-03, 1 pgs

LANTHANIDE DOPED TiO_x DIELECTRIC FILMS

Application Serial No. 10/219,878 (Atty Ref 1303.070US1) Restriction Requirement mailed 8-6-03, 5 pgs

Application Serial No. 10/219,878 (Atty Ref 1303.070US1) Response filed 9-8-03 to Restriction Requirement mailed 8-6-03, 1 pgs

ATOMIC LAYER DEPOSITED HfSiON DIELECTRIC FILMS WHEREIN EACH PRECURSOR IS INDEPENDENTLY PULSED

Application Serial No. 10/229,903 (Atty Ref 1303.078US1), Restriction Requirement mailed 07-25-03, 6 pgs

Application Serial No. 10/229903 (Atty Ref 1303.078US1), Response filed 08-25-03 to Restriction Requirement mailed 07-25-03, 6 pgs

Application Serial No. 10/229,903 (Atty Ref 1303.078US1), Response filed 10-31-06 to Notice of Allowance mailed 08-01-06, 3 pgs

Application Serial No. 10/229,903 (Atty Ref 1303.078US1), Advisory Action mailed 05-24-06, 3 pgs

Application Serial No. 10/229,903 (Atty Ref 1303.078US1), Response filed 06-08-06 to Advisory Action mailed 05-24-06, 5 pgs

Application Serial No. 10/229,903 (Atty Ref 1303.078US1), PTO response to rule 312 comm mailed 01-18-07, 2 pgs

ATOMIC LAYER DEPOSITED LANTHANIDE DOPED TiO_x DIELECTRIC FILMS

Application Serial No. 10/233,309 (Atty Ref 1303.079US1), Notice of Non-Compliant Amendment mailed 11-15-04, 4 pgs

Application Serial No. 10/233,309 (Atty Ref 1303.079US1), Response filed 12-15-04 to Non Final Office Action mailed 11-15-04, 17 pgs

Application Serial No. 10/233,309 (Atty Ref 1303.079US1), Advisory Action mailed 05-11-05, 3 pgs

Application Serial No. 10/233,309 (Atty Ref 1303.079US1), Response filed 06-13-05 to Advisory Action mailed 05-11-05, 16 pgs

Application Serial No. 10/233,309 (Atty Ref 1303.079US1), Comments on Statement of Reasons for Allowance mailed 05-05-06, 1 pg

Application Serial No. 10/926,812 (Atty Ref 1303.121US1), Response filed 5-04-2006 to Notice of Allowance mailed 02-09-06, 2 pgs

ATOMIC LAYER DEPOSITED Zr-Sn-Ti-O FILMS USING TiI₄

Application Serial No. 10/309,583 (Atty Ref 1303.082US1), Restriction Requirement mailed 07-28-03, 6 pgs

Application Serial No. 10/309583 (Atty Ref 1303.082US1), Response filed 08-28-03 to Restriction Requirement mailed 07-28-03, 6 pgs

ATOMIC LAYER DEPOSITED Zr-Sn-Ti-O FILMS

Application Serial No. 10/309,935 (Atty Ref 1303.083US1), Applicant's Comments on Reasons for Notice of Allowance filed 03-08-05, 1 pg

Application Serial No. 10/309,935 (Atty Ref 1303.083US1), PTO Response to Rule 312 filed 03-08-05 mailed 07-05-06, 2 pgs

Application Serial No. 10/309,935 (Atty. Ref. 1303.083US1) Amendment Under 37 CFR 1.312 mailed 03-08-2005, 15 pgs

ATOMIC LAYER DEPOSITED ZrAlxOy DIELECTRIC LAYERS INCLUDING Zr₄AlO₉

Application Serial No. 10/403,734, (Atty Ref 1303.092US1) Final Office Action mailed 3-1-2006, 10 pgs

Application Serial No. 10/403,734, (Atty Ref 1303.092US1) Non-Final Office Action mailed 6-14-2005, 8 pgs

Application Serial No. 10/403,734, (Atty Ref 1303.092US1) Non-Final Office Action mailed 10-19-2005, 8 pgs

Application Serial No. 10/403,734, (Atty Ref 1303.092US1) Response filed 9-13-2005 to Non-Final Office Action mailed 6-14-2005, 13 pgs

Application Serial No. 10/403,734, (Atty Ref 1303.092US1) Response filed 1-19-2006 to Non-Final Office Action mailed 10-19-2005, 18 pgs

Application Serial No. 10/403,734 (Atty Ref 1303.092US1), Response filed 4-14-2005 to Restriction Requirement mailed 3-16-2005, 13 pgs

Application Serial No. 10/403,734 (Atty Ref 1303.092US1), Restriction Requirement mailed 3-16-2005, 8 pgs

Application Serial No. 10/403,734 (Atty Ref 1303.092US1), Response filed 6-1-2006 to Final Office Action mailed 7-1-2006, 19 pgs

Application Serial No. 10/403,734 (Atty Ref 1303.092US1), Response filed 09-14-05 to Non Final Office Action mailed 06-14-05, 19 pgs

Application Serial No. 10/403,734 (Atty Ref 1303.092US1), Response filed 04-01-06 to Final Office Action mailed 03-01-06, 19 pgs

Application Serial No. 10/403,734 (Atty Ref 1303.092US1), Notice of Allowance mailed 06-30-06, 10 pgs

Application Serial No. 10/403,734 (Atty Ref 1303.092US1), Response filed 09-14-06 to Notice of Allowance mailed 06-30-06, 1 pg

ATOMIC LAYER DEPOSITED ZrTiO₄ FILMS

Application Serial No. 10/420,307 (Atty Ref 1303.097US1), Notice of Non Compliant Amendment mailed 11-10-04, 2 pgs

Application Serial No. 10/420,307 (Atty Ref 1303.097US1), Response filed 11-19-04 to Notice of Non Compliant Amendment mailed 11-10-04, 9 pgs

Application Serial No. 10/420,307, (Atty Ref 1303.097US1) Response filed 10-28-2004 to Restriction Requirement mailed 9-28-2004, 2 pgs

Application Serial No. 10/420,307, (Atty Ref 1303.097US1) Response filed 7-14-2006 to Restriction Requirement mailed 6-14-2006 p11.pdf, 11 pgs

Application Serial No. 10/420,307, (Atty Ref 1303.097US1) Restriction Requirement mailed 9-28-2004, 5 pgs

Application Serial No. 10/420,307, (Atty Ref 1303.097US1) Restriction Requirement mailed 6-14-2006, 5 pgs

Application Serial No. 10/420,307, (Atty Ref 1303.097US1) Response filed 10-27-2005 to Final Office Action mailed 7-27-2005, 12 pgs

Application Serial No. 10/420,307, (Atty Ref 1303.097US1) Final Office Action mailed 7-27-2005, 11 pgs

Application Serial No. 10/420,307, (Atty Ref 1303.097US1) Notice of allowance mailed 10-17-2006, 4 pgs

Application Serial No. 10/420,307, (Atty Ref 1303.097US1) Non-Final Office Action mailed 2-8-2005, 10 pgs

Application Serial No. 10/420,307, (Atty Ref 1303.097US1) Non-Final Office Action mailed 12-22-2005, 11 pgs

Application Serial No. 10/420,307, (Atty Ref 1303.097US1) Response filed 4-26-2005 to Non-Final Office Action mailed 2-8-2005, 12 pgs

Application Serial No. 10/420,307, (Atty Ref 1303.097US1) Response filed 3-22-2006 to Non-Final Office Action mailed 12-22-2005, 15 pgs

LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRICS

Application Serial No. 10/602,315 (Atty Ref 1303.107US1), Restriction Requirement mailed 05-17-04, 4 pgs

Application Serial No. 10/602,315 (Atty Ref 1303.107US1), Response filed 06-17-04 to Restriction Requirement mailed 05-17-04, 4 pgs

LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRIC LAYERS

Application Serial No. 10/602,323 (Atty. Ref. 1303.101US1) Amendment under 37 C.F.R. filed 02-07-2006, 10 pgs

Application Serial No. 10/602,323 (Atty. Ref. 1303.101US1) Response filed 07/27/2006 Non Final Office Action mailed 04/28/2006, 12 pgs

Application Serial No. 10/602,323 (Atty Ref 1303.101US1), Non Final Office Action mailed 04-28-06, 7 pgs

Application Serial No. 10/602,323 (Atty Ref 1303.101US1), Restriction Requirement mailed 07-23-04, 22 pgs

Application Serial No. 10/602,323 (Atty Ref 1303.101US1), Response filed 08-23-04 to Restriction Requirement mailed 07-23-04, 17 pgs

Application Serial No. 10/602,323 (Atty. Ref. 1303.101US1) Notice of allowance mailed 12/01/2005, 4 pgs

Application Serial No. 10/602,323 (Atty. Ref. 1303.101US1) Notice of allowance mailed 10/20/2006, 2 pgs

Application Serial No. 10/602,323 (Atty. Ref. 1303.101US1) Non Final Office Action mailed 06/06/2005, 9 pgs

Application Serial No. 10/602,323 (Atty. Ref. 1303.101US1) Non Final Office Action mailed 04/28/2006, 6 pgs

Application Serial No. 10/602,323 (Atty. Ref. 1303.101US1) Response filed 09/06/2005 Non-Final Office Action mailed 06/06/2005, 14 pgs

HIGH-QUALITY PRASEODYMIUM GATE DIELECTRICS

Application Serial No. 10/765,619 (Atty Ref 1303.033US2), Advisory Action mailed 07-14-05, 3 pgs

Application Serial No. 10/765,619 (Atty Ref 1303.033US2), Response filed 07-19-05 to Final Office Action mailed 04-19-05, 15 pgs

LOW-TEMPERATURE GROWN HIGH-QUALITY ULTRA-THIN PRASEODYMIUM GATE DIELECTRICS

Application Serial No. 10/768,597 (Atty Ref 1303.033US3), Restriction Requirement mailed 08-11-05, 6 pgs

Application Serial No. 10/768,597 (Atty Ref 1303.033US3), Response filed 09-12-05 to Restriction Requirement mailed 08-11-05, 15 pgs

LaAlO₃ FILMS

Application Serial No. 10/789,042 (Atty Ref 1303.050US2), Restriction Requirement mailed 09-29-05, 4 pgs

Application Serial No. 10/789,042 (Atty Ref 1303.050US2), Advisory Action mailed 12-06-06, 3 pgs

Application Serial No. 10/789,042 (Atty Ref 1303.050US2), Response filed 01-05-07 to Advisory Action mailed 12-06-06 and the Final Office Action mailed 09-05-06, 16 pgs

Application Serial No. 10/789,042 (Atty Ref 1303.050US2), Ex Parte Quayle Action mailed 04-10-07, 6 pgs

Application Serial No. 10/789,042 (Atty Ref 1303.050US2), Response filed 06-11-07 to Ex Parte Quayle Action mailed 04-10-07, 14 pgs

Application Serial No. 10/789,042 (Atty. Ref. 1303.050US2) Non Final Office Action mailed 08-30-2007, 12 pgs

Application Serial No. 10/789,042 (Atty Ref 1303.050US2), RCE filed 6-11-07, 11 pgs

Application Serial No. 10/789,042 (Atty Ref 1303.050US2), Response filed 11-30-07 to Non-Final Office Action mailed 8-30-07, 14 pgs.

LANTHANIDE DOPED TiO_x DIELECTRIC FILMS

Application Serial No. 10/789,044 (Atty Ref 1303.070US2) Restriction Requirement mailed 3-21-05, 6 pgs

Application Serial No. 10/789,044 (Atty Ref 1303.070US2) Response filed 4-15-05 to Restriction Requirement mailed 3-21-05, 1 pg

Application Serial No. 10/789,044 (Atty Ref 1303.070US2), Advisory Action mailed 12-08-06, 3 pgs

Application Serial No. 10/789,044 (Atty Ref 1303.070US2), Response filed 01-11-07 to Advisory Action mailed 12-08-06, 12 pgs

Application Serial No. 10/789,044 (Atty Ref 1303.070US2), Advisory Action mailed 01-17-06, 3 pgs

HIGHLY RELIABLE AMORPHOUS HIGH-k GATE DIELECTRIC ZrO_xNy

Application Serial No. 10/863,953 (Atty Ref 1303.031US2), Notice of Allowance mailed 11-06-06, 11 pgs

Application Serial No. 10/863,953 (Atty Ref 1303.031US2), Supplemental Notice of Allowance mailed 02-01-07, 4 pgs

ZIRCONIUM-DOPED TANTALUM OXIDE FILMS

Application Serial No. 10/909,959 (Atty Ref 1303.114US1), Non-Final Office Action mailed 01/09/2008, 13 pgs

Application Serial No. 10/909,959 (Atty Ref 1303.114US1), Response filed 11-8-07 to Final Office Action mailed 8-8-07, 13 pgs.

Application Serial No. 10/909,959 (Atty. Ref. 1303.114US1) Final Office Action mailed 08-08-2007, 10 pgs

Application Serial No. 10/909,959 (Atty. Ref. 1303.114US1) Non Final Office Action mailed 02-20-2007, 9 pgs

Application Serial No. 10/909,959 (Atty. Ref. 1303.114US1) Response filed 05-11-2007 Non-Final Office Action mailed 02-20-2007, 13 pgs

LANTHANIDE OXIDE DIELECTRIC LAYER

Application Serial No. 10/926,812, (Atty Ref 1303.121US1) Amendment under 37 C.F.R. filed 2/9/2006, 2 pgs

Application Serial No. 10/926,812, (Atty Ref 1303.121US1) Notice of allowance mailed 5/16/2005, 4 pgs

Application Serial No. 10/926,812, (Atty Ref 1303.121US1) Notice of allowance mailed 2/9/2006, 4 pgs

Application Serial No. 10/926,812, (Atty Ref 1303.121US1) Non-Final Office Action mailed 9/29/2005, 5 pgs

Application Serial No. 10/926,812, (Atty Ref 1303.121US1) Response filed 12/29/2005 Non-Final Office Action mailed 9/29/2005, 13 pgs

EVAPORATION OF Y-Si-O FILMS FOR MEDIUM-k DIELECTRICS

Application Serial No. 10/930,138 (Atty Ref 1303.044US2), Restriction Requirement mailed 01-13-05, 5 pgs

Application Serial No. 10/930,138 (Atty Ref 1303.044US2), Response filed 02-09-05 to Restriction Requirement mailed 01-13-05, 1 pg

CRYSTALLINE OR AMORPHOUS MEDIUM-K GATE OXIDES, Y₂O₃ AND GD₂O₃

Application Serial No. 10/930,184 (Atty Ref 1303.021US2), Non-Final Office Action mailed 5-5-06, 10 pgs
Application Serial No. 10/930,184 (Atty Ref 1303.021US2), Non Final Office Action mailed 10-20-05, 25 pgs
Application Serial No. 10/930,184 (Atty Ref 1303.021US2), Response filed 01-20-06 to Non Final Office Action mailed 10-20-05, 12 pgs
Application Serial No. 10/930,184 (Atty Ref 1303.021US2) Amendment Under 37 CFR mailed 1-20-06, 12 pgs
Application Serial No. 10/930,184 (Atty Ref 1303.021US2),Non Final Office Action mailed 05-05-06, 9 pgs
Application Serial No. 10/930,184 (Atty Ref 1303.021us2), Response filed 09-05-06 to Non Final Office Action 05-05-06, 10 pgs

HfAlO₃ FILMS FOR GATE DIELECTRICS

Application Serial No. 10/930,431 (Atty Ref 1303.056US2), Response filed 11-19-2007 to Final Office Action mailed 10-12-2007, 11 pgs.
Application Serial No. 10/930,431, (Atty Ref 1303.056US2) Response filed 9-11-2007 to Final Office Action mailed 7-11-2007, 11 pgs
Application Serial No. 10/930,431, (Atty Ref 1303.056US2) Final Office Action filed 10-12-2007, 5 Pgs
Application Serial No. 10/930,431 (Atty Ref 1303.056US2), Advisory Action filed 10-17-2006, 2 pgs
Application Serial No. 10/930,431 (Atty Ref 1303.056US2), Advisory Action filed 12-28-2007, 2 pgs
Application Serial No. 10/930,431 (Atty Ref 1303.056US2), Response filed 1-14-08 to Advisory Action mailed 12-28-07, 12 pgs.

DEVICES WITH HfSiON DIELECTRIC FILMS WHICH ARE Hf-O RICH

Application Serial No. 10/930,516 (Atty. Ref. 1303.078US2) Notice of Allowance mailed 08-10-2007, 9 pgs
Application Serial No. 10/930,516 (Atty Ref 1303.078US2), Response filed 11-08-07 to Notice of Allowance mailed 08-10-07, 9 pgs
Application Serial No. 10/930,516 (Atty Ref 1303.078US2), Restriction Requirement mailed 3-28-06, 5 pgs.
Application Serial No. 10/930,516 (Atty Ref 1303.078US2), Response filed 4-26-06 to Restriction Requirement mailed 3-28-06, 9 pgs.
Application Serial No. 10/930,516 (Atty Ref 1303.078US2), Restriction Requirement mailed 5-9-06, 5 pgs
Application Serial No. 10/930,516 (Atty Ref 1303.078US2), Response filed 6-9-06 to Restrictiton Requirement mailed 5-9-06, 10 pgs

LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRICS

Application Serial No. 10/931,340 (Atty Ref 1303.107US2), Non Final Office Action mailed 11-08-05, 10 pgs
Application Serial No. 10/931,340 (Atty Ref 1303.107US2), ApplicantÂ's Comments on Reasons for Notice of Allowance filed 09-15-06, 1 pg .

Zr-Sn-Ti-O FILMS

Application Serial No. 10/931,341 (Atty. Ref. 1303.082US2) Advisory Action mailed 06-13-2006, 3 pgs
Application Serial No. 10/931,341 (Atty. Ref. 1303.082US2) Response filed 06-26-2006 to Advisory Action mailed 06-13-2006, 15 pgs
Application Serial No. 10/931,341 (Atty. Ref. 1303.082US2) Final Office Action mailed 03-24-2006, 11 pgs
Application Serial No. 10/931,341 (Atty. Ref. 1303.082US2) Response filed 05-24-2006 to Final Office Action mailed 03-24-2006, 15 pgs

Application Serial No. 10/931,341 (Atty Ref 1303.082US2), Preliminary Amendment mailed 11-28-2007, 2 pgs

Application Serial No. 10/931,341 (Atty Ref 1303.082US2), Final Office Action mailed 9-12-2007, 5 pgs

Application Serial No. 10/931,341 (Atty. 1303.082US2) Final Office Action Mailed 09/12/2007, 18 pgs.

Application Serial No. 10/931,341 (Atty Ref 1303.082US2), Response filed 11-13-07 to Final Office Action mailed 9-12-07, 12 pgs.

LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRIC LAYERS

Application Serial No. 10/931,343, (Atty Ref 1303.101US2) Response filed 7/17/2006 Final Office Action mailed 5/15/2006, 7 pgs

Application Serial No. 10/931,343, (Atty Ref 1303.101US2) Final Office Action mailed 5/15/2006, 9 pgs

Application Serial No. 10/931,343, (Atty Ref 1303.101US2) Non-Final Office Action mailed 10/26/2006, 5 pgs

Application Serial No. 10/931,343, (Atty Ref 1303.101US2) Response filed 1/26/2007 Non Final Office Action mailed 10/26/2006, 10 pgs

Application Serial No. 10/931,343, (Atty Ref 1303.101US2) Notice of allowance mailed 4/23/2007, 2 pgs

Application Serial No. 10/931,343, (Atty Ref 1303.101US2) Notice of allowance mailed 8/13/2007, 2 pgs

Application Serial No. 10/931,343, (Atty Ref 1303.101US2) Non-Final Office Action mailed 11/29/2005, 8 pgs

Application Serial No. 10/931,343, (Atty Ref 1303.101US2) Response filed 2/28/2006 Non-Final Office Action mailed 11/29/2005, 11 pgs

Application Serial No. 10/931,343 (Atty Ref 1303.101US2), Response filed 9-15-2005 to Restriction Requirement mailed 8-16-2005, 8 pgs

Application Serial No. 10/931,343 (Atty Ref 1303.101US2), Restriction Requirement mailed 8-16-2005, 8 pgs

Application Serial No. 10/931,343 (Atty Ref 1303.101US2), Response filed 08-15-06 to Final Office Action mailed 05-15-06, 10 pgs

Application Serial No. 10/931,343 (Atty Ref 1303.101US2), Advisory Action mailed 07-24-06, 3 pgs

Electronic Devices Having Lanthanide Dielectrics

Application Serial No. 10/931,365, (Atty Ref 1303.059US2) Advisory Action mailed 7-10-2007, 2 pgs

Application Serial No. 10/931,365, (Atty Ref 1303.059US2) Response filed 8-7-2006 to Restriction Requirement mailed 7-5-2006, 16 pgs

Application Serial No. 10/931,365, (Atty Ref 1303.059US2) Restriction Requirement mailed 7-5-2006, 4 pgs

METHOD OF FORMING APPARATUS HAVING OXIDE FILMS FORMED USING ATOMIC LAYER DEPOSITION

Application Serial No. 10/931,533 (Atty Ref 1303.119US1), Response filed 1-10-08 to Final Office Action mailed 12-31-07, 19 pgs

Application Serial No. 10/931,533 (Atty Ref 1303.119US1), Advisory Action mailed 12-31-2007, 2 pgs

Application Serial No. 10/931,533 (Atty Ref 1303.119US1), Response filed 11-9-2006 to Restriction Requirement mailed 10-10-2006, 11 pgs

Application Serial No. 10/931,533 (Atty Ref 1303.119US1), Restriction Requirement mailed 10-10-2006, 4 pgs

Application Serial No. 10/931,533, (Atty Ref 1303.119US1) Non-Final Office Action mailed 4-4-2007, 8 pgs

Application Serial No. 10/931,533, (Atty Ref 1303.119US1) Response filed 7-3-2007 to Non-Final Office Action mailed 4-4-2007, 19 pgs

Application Serial No. 10/931,533, (Atty Ref 1303.119US1) Notice of allowance mailed 12-21-2006, 4 pgs

Application Serial No. 10/931,533, (Atty Ref 1303.119US1) Final Office Action mailed 10-10-2007, 10 pgs

Application Serial No. 10/931,533 (Atty Ref 1303.119US1), Response filed 12-10-2007 to Final Office Action mailed 10-10-2007, 19 pgs.

LANTHANUM HAFNIUM OXIDE DIELECTRICS

Application Serial No. 11/010,529, (Atty Ref 1303.126US1) Non-Final Office Action mailed 9/5/2006, 14 pgs

Application Serial No. 11/010,529, (Atty Ref 1303.126US1) Response filed 12/5/2006 Non-Final Office Action mailed 9/5/2006, 17 pgs

Application Serial No. 11/010,529, (Atty Ref 1303.126US1) Notice of allowance mailed 2/13/2007, 2 pgs

Application Serial No. 11/010,529 (Atty Ref 1303.126US1), Preliminary Amendment filed 11-11-2005, 13 pgs

Application Serial No. 11/010,529 (Atty Ref 1303.126US1), Restriction Requirement mailed 6-23-2006, 4 pgs

Application Serial No. 11/010,529 (Atty Ref 1303.126US1), Response filed 7-24-2006 to Restriction Requirement mailed 6-23-2006, 12 pgs

METHODS OF FORMING PrxOy/ZrO₂ DIELECTRIC LAYERS BY COMBINATIONS OF ATOMIC LAYER DEPOSITION AND CHEMICAL VAPOR DEPOSITION (as amended)

Application Serial No. 11/010,766 (Atty. Ref. 1303.129US1) Non Final Office Action mailed 8/8/2007, 17 pgs

METHODS FOR FABRICATING HAFNIUM TANTALUM OXIDE DIELECTRICS

Application Serial No. 11/029,757 (Atty Ref 1303.127US1), Non-Final Office Action mailed 11-28-2007, 14 Pgs

LANTHANIDE DOPED TiO_x DIELECTRIC FILMS BY PLASMA OXIDATION

Application Serial No. 11/031,289 (Atty Ref 1303.069US3), Response filed 11-13-07 to Non-Final Office Action mailed 8-10-07, 10 pgs.

Application Serial No. 11/031,289 (Atty. Ref. 1303.069US3) Non Final Office Action Mailed 08-10-2007, 13 pgs

Application Serial No. 11/031,289 (Atty Ref 1303.069US3), Non-Final Office Action mailed 01/25/2008, 6 pgs

LOW-TEMPERATURE GROWN HIGH QUALITY ULTRA-THIN CoTiO₃ GATE DIELECTRICS

Application Serial No. 11/036,296 (Atty Ref 1303.030US2), Response filed 8-22-07 to Non-Final Office Action mailed 5-22-07, 6 pgs.

Application Serial No. 11/036,296 (Atty. Ref. 1303.030US2) Notice of Allowance mailed 10/22/2007, 6 pgs

LaAlO₃ FILMS FOR ELECTRONIC APPARATUS (as amended)

Application Serial No. 11/059594 (Atty. Ref. 1303.046US2) Non-Final Office Action mailed 11/2/07, 24 pgs

Application Serial No. 11/059,594 (Atty Ref 1303.046US2), Preliminary Amendment filed 02-16-05, 3 pgs

Application Serial No. 11/059,594 (Atty Ref 1303.046US2), Restriction Requirement mailed 04-06-07, 5 pgs

Application Serial No. 11/059,594 (Atty Ref 1303.046US2), Response filed 05-07-07 to Restriction Requirement mailed 04-06-07, 8 pgs

Application Serial No. 11/059,594 (Atty Ref 1303.046US2), Response filed 2-4-08 to Non-Final Office Action mailed 11-2-07, 14 pgs.

Zr-Sn-Ti-O FILMS

Application Serial No. 11/084,968 (Atty Ref 1303.083US2), Response filed 07-27-07 to Restriction Requirement mailed 06-27-07, 10 pgs

ALD OF AMORPHOUS LANTHANIDE DOPED TiOX FILMS

Application Serial No. 11/092,072 (Atty Ref 1303.135US1), Response filed 9-6-07 to Non-Final Office Action mailed 6-15-07, 16 pgs.

Application Serial No. 11/092,072 (Atty Ref 1303.135US1), Response filed 11-2-07 to Final Office Action mailed 10-15-07, 10 pgs.

Application Serial No. 11/092,072 (Atty Ref 1303.135US1) Final Office Action Mailed 10/15/07, 9 pgs

ATOMIC LAYER DEPOSITED TITANIUM SILICON OXIDE FILMS

Application Serial No. 11/093,104 (Atty Ref 1303.136US1), Response filed 9-27-07 to Non-Final Office Action mailed 6-27-07, 14 pgs.

Application Serial No. 11/093,104, (Atty Ref 1303.136US1) Non-Final Office Action mailed 6/27/2007, 16 pgs

Application Serial No. 11/093,104 (Atty Ref 1303.136US1), Notice of Allowance mailed 12-26-07, 4 pgs.

ATOMIC LAYER DEPOSITED ZIRCONIUM SILICON OXIDE FILMS

Application Serial No. 11/117,121 (Atty. Ref. 1303.138US1) Notice of Allowance mailed 9/24/07, 8 pgs

Application Serial No. 11/117121 (Atty Ref 1303.138US1), Notice of Allowance Mailed 01-22-2008, 16

ATOMIC LAYER DEPOSITION OF A RUTHENIUM LAYER TO A LANTHANIDE OXIDE DIELECTRIC LAYER

Application Serial No. 11/117,125 (1303.139US1), Restriction Requirement mailed 10-30-07, 6 pgs

Application Serial No. 11/117,125 (Atty Ref 1303.139US1), Restriction Requirement mailed 10-31-07, 6 pgs

ATOMIC LAYER DEPOSITED NANOLAMINATES OF HfO₂/ZrO₂ FILMS AS GATE DIELECTRICS

Application Serial No. 11/148,505 (Atty Ref 1303.061US2), Notice of Allowance mailed 9-11-06, 12 pgs

NANOLAMINATES OF HAFNIUM OXIDE AND ZIRCONIUM OXIDE

Application Serial No. 11/178,914 (Atty Ref 1303.061US3), Restriction Requirement mailed 11-29-07, 5 pgs

Application Serial No. 11/178,914 (Atty Ref 1303.061US3), Response filed 12-28-07 to Restriction Requirement mailed 11-29-07, 9 pgs

ATOMIC LAYER DEPOSITED Zr-Sn-Ti-O FILMS USING TiI₄

Application Serial No. 11/214,693 (Atty. Ref. 1303.082US3) Notice of Allowance Mailed 09-24-2007, 10 pgs.

Application Serial No. 11/214,693 (1303.082US3), Non Final Office Action mailed 10-31-06,

RUTHENIUM GATE FOR A LANTHANIDE OXIDE DIELECTRIC LAYER

Application Serial No. 11/215412 (Atty. Ref. 1303.121US2) Restriction Requirement mailed 9/24/07, 5 pgs

Application Serial No. 11/215,412 (Atty Ref 1303.121US2), Non-Final Office Action mailed 01/28/2008, 5 pgs

LANTHANIDE DOPED TiOX DIELECTRIC FILMS

Application Serial No. 11/427,569 (Atty Ref 1303.079US2), Response filed 8-29-07 to Non-Final Office Action mailed 5-29-07, 11 pgs.

Application Serial No. 11/427,569(Atty Ref. 1303.079US2) Notice of Allowance mailed 11/15/2007, 10 Pages

Application Serial No. 11/427,569 (Atty Ref 1303.079US2), Notice of Allowance mailed 11/15/2007, 4 pgs

ATOMIC LAYER DEPOSITED NANOLAMINATES OF HfO₂/ZrO₂ FILMS AS GATE DIELECTRICS

Application Serial No. 11/457,978 (Atty Ref 1303.061US4), Non-Final Office Action mailed 12-26-07, 12 pgs.

ATOMIC LAYER DEPOSITED NANOLAMINATES OF HfO₂/ZrO₂ FILMS AS GATE DIELECTRICS

Application Serial No. 11/457,987 (Atty Ref 1303.061US5), Non-Final Office Action mailed 01/25/2008, 26 pgs

LANTHANIDE OXIDE / HAFNIUM OXIDE DIELECTRIC LAYERS

Application Serial No. 11/493,074 (Atty Ref 1303.101US3), Restriction Requirement mailed 12-13-07, 9 pgs

Application Serial No. 11/493,074 (1303.101US3), Response filed 01-14-08 to Restriction Requirement mailed 12-13-07, 11 pgs

LANTHANUM HAFNIUM OXIDE DIELECTRICS

Application Serial No. 11/584,229 (Atty Ref 1303.126US2), Response filed 1-15-08 to Non-Final Office Action mailed 10-15-07, 16 pgs.

Application Serial No. 11/584,229 (Atty Ref 1303.126US2) Non Final Office Action mailed 10/15/07, 13 pgs

ATOMIC LAYER DEPOSITED ZIRCONIUM ALUMINUM OXIDE

Application Serial No. 11/598,437, (Atty Ref 1303.092US3) Non-Final Office Action mailed 10-4-2007, 18 pgs

Application Serial No. 11/598,437 (Atty Ref 1303.092US3), Response filed 1-4-2008 to Non-Final Office Action mailed 10-4-2007, 19 pgs.

Pursuant to 37 C.F.R. 1.98(a)(2), Applicant believes that copies of cited U.S. Patents and Published Applications, and Non-Published Applications identifiable by USPTO Serial Number, are no longer required to be provided to the Office. Notification of this change to this effect was provided in the United States Patent and Trademark Office OG Notice dated October 19, 2004. Thus, Applicant has not included copies of any US Patents or US Patent Applications identifiable by serial number that may be cited with this submission. Should the Office require copies to be provided, Applicant respectfully requests that notice of such requirement be directed to Applicant's below-signed representative. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

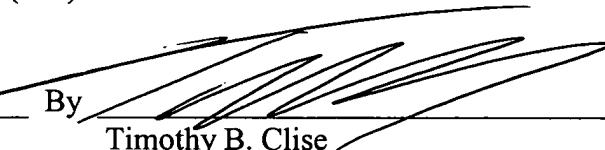
Respectfully submitted,

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Date

6 Feb '08

By


Timothy B. Clise
Reg. No. 40,957

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 6th day of February, 2008.

Name

Patrick McNally

Signature

Patrick McNally